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## SOME NEW NEOTROPICAL SYRPHIDAE (DIPTERA)

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The species described herein have come to hand from various sources and, unless otherwise stated, the types are in the Museum collection.

### MICRODON MEIGEN

Since the publication of the key to this genus in Novitates No. 882 a number of undescribed species have been received from various sources, but chiefly from Dr. C. L. Fluke and Mr. R. C. Shannon. The Museum is greatly indebted for this material and the privilege of adding the types to the collection. The following key includes the neotropical species that are known to me.

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than the face, reddish, the first segment as long as the apical two combined, the third more than twice the second, elongate oval, obtuse apically, the upper edge flattened; arista fully as long as the third segment.

Thorax black, with rather abundant erect black pile. Scutellum prominent, carried upward, the apex shallowly concave and leaving weak mammiform prominences, on which the pile is more dense than elsewhere.

Legs black, the tarsi reddish and with reddish hair except on the basal segment of the anterior pair; pile black and erect. Apex of posterior femora and all but the lower surface of the posterior tibiae brownish red in ground color.

Wings brown, paler and in some lights with yellowish tinge on the apical third. Apical crossvein strongly recurrent though turned outward just before joining the third vein; bend of fourth vein sharply rounded, usually with short appendage. Squamae brownish gray, with brown border and fringe. Knob of halteres luteous to pale brownish.

Abdomen shining brownish black, with the apex and genitalia orange. Second segment widest near its middle, third with parallel sides, the fourth narrowing to beyond the middle, thence with parallel sides. Pile black, tawny on the orange area; the orange apex is produced broadly forward inside the narrow lateral margin to the basal fourth of the segment. Genitalia orange and with yellow pile. Venter black, the fifth sternite orange except on the narrow base and sides, the pile following the ground color.

**FEMALE.**—Front with almost parallel sides on the upper three-fourths, the depression very weak; the profile almost as in the male. A small patch of pale yellow pile at the inner ends of the suture and on each side in front of the corners of the scutellum (these scarcely indicated in ♂); basal two segments of all the tarsi blackish or brown and bearing black pile; wings much more uniform in color, becoming pale posteriorly and apically. Second abdominal segment with a large triangle of very short, appressed whitish pile on each side, the third with a small patch of white hairs on the apical corners, the fourth broadly whitish pilose on the apex; fifth segment with pale yellowish pile but with a large triangle on the apex in which black and yellow hairs are intermixed.

**TYPES.**—Holotype, male, and allotype, female, Nova Teutonia, Brazil, December 10, 1937, and February 23, 1938 (F. Plaumann), received from Dr. C. L. Fluke.

In this species, which closely resembles *plaumanni*, the scutellum has less prominent mammiform processes and there is no pale pile on the posterior tibiae.

#### ***Microdon conops*, new species**

Brownish and reddish, the abdomen pedicellate; face with median blackish vitta. Length, 12 mm.

**MALE.**—Head black, the face reddish yellow with a narrow median black vitta that is obsolete above. Front shining, with appressed golden pile in front of the suture, the upper swollen part with sparse yellowish pile; upper section of the front strongly swollen and convex, the ocellar triangle small and situated far forward on the swelling; front narrowest at the anterior third, more strongly widening above than below. Occiput with pale brassy pollen and pale golden pile. Cheeks black, cinereous pollinose, and yellowish pilose. Face with pale golden pile, the middle with a black-haired stripe; in profile most prominent above, gently retreating below, above the mouth rather strongly convex. Antennae longer than the face, blackish, the first segment reddish on the basal third; third segment slightly shorter than the first, with almost parallel sides, the apex bluntly rounded, the arista much shorter than the segment; second segment about one-third as long as the first.

Thorax brownish, the dorsum blackish with greenish tinge, densely clothed with appressed pale golden pile, the pleura bare except for a broad median band. Humeri yellow. Scutellum evenly rounded apically.

Legs dark reddish, the anterior four tibiae paler, the posterior tarsi brownish; posterior femora with more than the median half green on the upper and anterior surfaces. Pile very short and pale yellowish, the posterior femora with black spinules on the apical third of both lower edges.

Wings cinereous hyaline, tinged with luteous in front, the veins on the apical half weakly clouded with brownish. Apical crossvein transverse, the bend of the fourth vein very broadly rounded posteriorly and without appendage. Squamae white, with yellow border and fringe. Halteres yellow.

Abdomen pedicellate, the second segment narrow and almost as long as the third and fourth combined. First segment short, dark brownish, second elongate, reddish with a brown median vitta, gently narrowing from the base to the basal fourth, thence slightly widening to the apex; third segment widening from base to apex but not as wide as the fourth, dull brownish black with the apex broadly reddish on the median two-thirds and clothed with appressed golden yellow pile, the pile on the disc very short and black; fourth segment brownish black with reddish apex, widest near its middle but only slightly narrowed posteriorly, clothed with appressed pale golden pile, the pile shorter, somewhat darker, and much less conspicuous on the basal half of the segment. Genitalia reddish. Two apical sternites brownish, with the apices broadly reddish.

**HOLOTYPE.**—Male, Maracaju, Matto Grosso, Brazil, August, 1937 (R. C. Shannon).

This species somewhat resembles *beebei* Curran but is readily distinguished by its

smaller size, wholly golden pollinose mesonotum and scutellum, black vittate face, etc.

### *Microdon mellea*, new species

Rusty yellowish, the thorax with black markings; wings reddish yellow with median blackish band and grayish apex and hind margin. Length, 9 mm.

MALE.—Head pale orange, the face pale yellow, the ocellar swelling, and an elongate spot above the antennae shining black. Front and face narrow, gradually widening from the vertex to the upper fifth of the face, thence narrowing to the oral margin. Front about one-fifth as wide as one eye, in profile gently convex above, strongly convex at the anterior two-fifths, the depression not distinct from the anterior part of the front; ocelli situated near the middle of the front. Occiput of equal width, with whitish pollen below, becoming yellow in ground color below the middle. Cheeks obsolete. Face perpendicular, strongly convex below and moderately convex above. Pile very short, yellowish, much longer, and whitish on the face; a few black hairs near the antennae. Antennae brown, the third segment brownish red; hair yellowish, black above; antennae shorter than the face, the first segment long and slender, longer than the apical two segments combined, the third segment little longer than the second, twice as long as wide, with sharply rounded apex; arista reddish on basal half, longer than the third segment. Eyes with very short, rather sparse hairs.

Thorax rusty yellowish with tawny pile; a black spot above the posterior coxae and a broad shining black stripe on the posterior half of the mesopleura; mesonotum with a broad shining black stripe on the anterior three-fourths that tapers anteriorly, a roundish black spot on each side in front of the suture and a larger black spot on each side behind the suture. The median black stripe may be paler and geminate in front while the lateral spots are only weakly separated from the stripe, and there may be a small black spot on each side above the base of the wing. The pile is moderately long, black on the anterior black spots, and forming a broad black band behind the suture. Scutellum somewhat less than twice as long as wide, its free border convex, but transverse on a little more than half the basal width; pile black, the whole border with tawny pile.

Legs rusty reddish yellow, the anterior four tibiae and the tarsi paler; pile moderately long, tawny, yellowish on the tibiae and tarsi, black and longer on the swollen posterior tibiae except basally, the long black pile extending onto the first segment of the tarsi; all the pile on the posterior tarsi long and erect.

Wings rich creamy yellowish, with a black spot near the middle on the anterior half, replaced by gray behind, the gray narrowly connected posteriorly with the broadly grayish

apex. Apical crossvein forming an angle with the fourth vein and conspicuously recurrent, a strong short appendage at the junction of the two veins. Squamae rusty reddish. Halteres yellow.

Abdomen widest at the apex of the second segment, thence tapering to the apex, tawny pilose, the fourth segment with a large basal patch of appressed long black pile in the middle. Second segment fairly strongly convex in front, gently so on the posterior half, running evenly into the first; third segment one-third longer than the second in the middle, the fourth slightly longer than the second. Genitalia small. Venter wholly pale.

TYPES.—Holotype, male, and paratype, male, Tukheit Trail, Kaieteur, British Guiana, September 10, 1937 (Richards and Smart), the type in the British Museum of Natural History.

This is one of the *Trigona*-like species. It may be readily separated from the others by the peculiar shape of the antennae, which are situated very high on the head.

### *Microdon mackiei*, new species

Rusty reddish yellow, with blackish markings; wings pale orange, grayish apically and posteriorly; abdomen strongly constricted beyond the second segment. Length, about 9 mm.

MALE.—Front shining black, narrowest at the anterior third, the depression transverse and deep; in profile most prominent at the middle of the upper section and convex behind the ocellar triangle. Pile golden, rather short. Occiput with golden pile above, the pile becoming pale below. Cheeks narrow, with sparse yellow pile. Face rather narrow and narrowed below, yellow, with a linear median brown stripe, the pile pale yellow; in profile perpendicular, gently convex below. Antennae long, brownish, the base of the third segment broadly reddish; third segment almost as long as the two basal segments combined, with almost parallel sides, the apex rounded; second segment not one-fourth as long as the third; arista shorter than the third segment. Eyes bare.

Thorax rusty reddish yellow, the mesonotum mostly black; a broadly interrupted band on the anterior margin, and the broad sides behind the suture reddish yellow, the outer end of the suture yellowish. Scutellum short, almost evenly convex, about three times as wide as long. Pile short, golden, a narrow, laterally broadened band of black hair immediately behind the suture and there are some black hairs mixed with the pale ones on the posterior half of the scutellum. There are brownish spots above and below on the mesopleura and a large one above the hind coxae.

Legs reddish, the anterior four tibiae and tarsi reddish yellow; posterior tibiae mostly brownish on the apical third, the basal two segments of their tarsi brown. Pile yellowish, long

and erect on the posterior tibiae, black on the apical third of the posterior tibiae, the black hair extending almost to the middle dorsally; posterior tarsi with black pile on the basal four segments. Posterior tibia enlarging from base to apical third where it is rather strongly narrowed dorsally, thence tapering to the apex.

Wings pale orange on more than the basal half, the posterior border and apex cinereous; bend of fourth vein broadly rounded, the apical crossvein recurrent. Squamae reddish.

Abdomen shining rusty reddish, the apex of the third segment and the broad sides of the fourth on more than the basal half blackish. Pile tawny, moderately long. Abdomen strongly constricted beyond the second segment; second segment widest, in the middle one-third as long as the third; fourth segment with almost parallel sides, twice as long as wide. Venter reddish, the fourth visible sternite broadly bordered with black.

**HOLOTYPE.**—Male, Rockstone, British Guiana, June 2, 1929 (Alice Mackie), received from Prof. T. D. A. Cockerell.

#### *Microdon mixtus*, new species

Rusty reddish yellow, the thorax black above; front black; abdomen strongly constricted beyond the second segment. Length, about 8.5 mm.

**FEMALE.**—Very similar to *mackiei* but the face lacks a median blackish stripe; front brown; anterior oral margin not produced downward, on a level with the cheeks (produced downward in *mackiei*). Mesopleura with a pale brownish band in front instead of a spot above and one below on the posterior part, the pteropleura with a vertical brownish stripe anteriorly, the spot above the posterior coxae not extending to the spiracle. The pile on the mesonotum is similar in color but it is longer, less appressed and not crinkly. In front of the suture the pile in the middle is directed backward while on either side of the broad middle line some is directed forward. Scutellar pile wholly tawny. Pile on the tibiae whitish, the posterior tibiae black and black-haired on more than the apical half, the pile shorter and less erect. Bend of the fourth vein angular. Abdomen wholly pale, the third and fourth segments mostly black-haired dorsally.

**HOLOTYPE.**—Female, Kamaria Landing, Cuyuni River, British Guiana, November 22, 1929 (Oxford University Expedition), in British Museum.

It is not impossible that this is the female of *mackiei* but the differences noted seem to indicate that the two are distinct.

#### *Microdon triangularis*, new species

A small, shining black species with triangular abdomen; pile black except for the head and yellow spots on the thorax. Length, 6 mm.

**MALE.**—Head black, the facial orbits yellowish; pile pale yellowish on the face and lower half of the occiput, black above. Front narrowest at the anterior fifth, widening to the vertex and below, the ocellar triangle small, longer than wide, situated at the middle of the upper section of the front. Occiput with pale pollen on the lower half. Cheeks linear, not visible in profile. Face very gently convex, almost flat for much of its length, strongly narrowed below. Antennae about as long as the face; the third segment about twice as long as the first, its apex rather sharply rounded above; second segment about half as long as the first.

Thorax shining black, the pleura somewhat castaneous; pile erect, black; small spots of yellow pile at the inner ends of the suture and in front of the sides of the scutellum, the scutellum usually with some yellow pile laterally on the free border, short and only gently convex apically; pleura with long, sparse yellow hairs across the middle.

Legs black and with black pile, posterior surfaces of the anterior four tibiae and the basal half of the upper surface of the posterior tibiae with white pile. Pile short, long on the dorsal surface of the posterior tibiae.

Wings strongly tinged with brown; apical crossvein transverse or very slightly recurrent, the bend broadly rounded and with a short appendage in front. Squamae grayish, with brown border and fringe. Halteres brownish.

Abdomen broad, the fused third and fourth segments almost as long as the basal two combined and tapering from base to the sharply rounded apex. Pile black except for a triangle of white pile on the posterior corners of the second segment. Genitalia small. Venter black or brown and practically without hair.

**TYPES.**—Holotype, male, and two paratypes, males, Dourados, Matto Grosso, Brazil, April, 1937 (R. C. Shannon).

#### *Microdon clavicornis*, new species

Thorax and base of abdomen reddish; wings black; third antennal segment clavate. Length, 10 mm.

**FEMALE.**—Front and occiput black, the latter cinereous pollinose except along the orbits; front more than twice as wide as long, with a deep transverse depression at the anterior third; ocellar triangle small, situated at the middle of the upper section; pile black; orbits with an orange triangle just below the depression. Occiput with black pile above and pale yellow pile below. Cheeks narrow, pale yellow with a brown spot in the middle. Face pale yellow, with a very broad median black stripe that tapers below, the pile yellow; in profile slightly receding below, concave below the antennal tubercle, receding just at the oral margin. Antennae black, elongate, the third segment longer than the basal two combined, enlarged on the apical third to form a conspicuous club, the apex convex;



second segment very short; arista fine, shorter than the first segment.

Thorax dull orange, the pleura paler, clothed with short erect orange pile, the scutellum with black pile on the apical half; its apex evenly rounded.

Legs black, with short black pile; coxae, trochanters, anterior four femora, and the narrow base of the posterior pair yellowish, the anterior four tarsi brownish red.

Wings very broad, long and blackish, with grayish indentations in the second and third posterior cells and grayish streaks in the discal and anal cells; apical crossvein recurrent on the posterior half, thence strongly carried outward, its apical section somewhat sinuate. Squamae black. Knob of halteres brown.

Basal two abdominal segments reddish, the apical segments shining brown, becoming black apically. Second segment widest, considerably longer than the third and almost as long as the fourth, the fifth short; third segment almost as wide as the apex of the second, the third gently narrowing apically, the fourth rather strongly narrowing; third segment with a dark apical band, the fourth obscurely reddish basally in the middle. Pile short, black. Venter reddish, the fourth segment mostly brownish, the fifth blue-black, the ovipositor black. All the abdominal segments are freely articulated.

**HOLOTYPE.**—Female. High Forest, Mazaruni, British Guiana, August 21, 1937 (Richards and Smart), in British Museum.

#### *Microdon mitis*, new species

A small blackish species with long, approximated scutellar spines and brownish apex to the abdomen. Length, 6 to 7 mm.

**MALE.**—Head greenish black, with yellowish pile, the front black-haired with a band of yellow or tawny pile across the depression and sometimes along the sides. Frontal depression well marked, the front narrowest at the anterior fourth, the ocellar triangle small, longer than wide, situated at the middle of the upper section. Occiput with cinereous yellow pollen. Cheeks narrow. Face gently and evenly convex. Antennae brownish red, the third segment brown on the apical half or less, its apex rather sharply pointed above, as long as the two basal segments combined, the second segment scarcely one-third as long as the first. Antennae slightly shorter than the face.

Thorax brownish black, the dorsum metallic greenish black, somewhat bronzed, the pile erect and wholly brassy yellow. Scutellum moderately long, the apex narrowly concave between the approximated, long luteous or brownish spines.

Legs brownish and brownish red, the anterior four tibiae, the apices of the femora and the base of the posterior tibiae yellowish or yellowish red; pile whitish or pale brassy yellow, not abundant, black on the femora except basally and apically, and on the posterior tarsi.

Wings cinereous hyaline, with brownish tinge on the apical half. Apical crossvein slightly recurrent, only slightly bent near its middle, the bend of the fourth vein unusually angular and with a short appendage. Squamae pale yellow or white, with yellow border and fringe. Halteres pale yellow.

Abdomen blackish, widest near the base of the second segment, thence slightly tapering to the broadly rounded apex. Pile pale brassy yellow, the third segment with a broad, incomplete opaque band bearing black hairs and produced backward in the middle and toward the sides. Fourth segment with black hair on more than the basal half which is produced backward in the middle and laterally, the basal corners of the segment more or less broadly reddish. Genitalia about half reddish and half brownish, the pile yellow. Venter brownish, with pale pile basally and black pile on the fifth sternite.

**TYPES.**—Holotype, male, and paratypes, four males, Rio de Janeiro, Brazil, September, 1937, and one male, November 1937 (R. C. Shannon).

#### *Microdon virgo*, new species

Metallic green to violaceous, the scutellum with at least the lower border reddish; legs mostly reddish. Length, 11 to 12 mm.

**MALE.**—Head metallic green and violaceous, the occiput and narrow facial orbits with cinereous pollen. Front very narrow and with deep groove at the anterior third, more than twice as wide at the vertex; pile black, some yellow hairs along the lower orbits and across the depression, the pile of the vertex reddish yellow. Ocellar triangle small, situated at the middle of the upper section of the front. Occipital pile yellow above, becoming white below. Cheeks narrow. Face gently receding, moderately convex below, gently narrowing below, the pile pale yellowish to white. Antennae black, the third segment brown with the base more or less reddish; first segment as long as the apical two combined, the third not twice as long as the second, widest near the middle, tapering to the rounded apex; arista shorter than the third segment. Eyes bare.

Thorax metallic green, blue or violaceous, with golden suberect pile above, the hair becoming white on the lower half of the pleura. Scutellum reddish or coppery red, the sides and base metallic green or blue, the pile golden or tawny; in shape about twice as wide as long, transverse apically and with a strong spine on each apical corner.

Coxae and basal half or more of the femora metallic greenish, the apices of the femora and the tibiae and tarsi reddish. Pile rich reddish yellow, white on the upper surface of the tibiae.

Wings tinged with brownish; bend of fourth vein broad, the apical crossvein a little recurrent. Squamae grayish with orange border and fringe. Knob of halteres white.

Abdomen rather bronze-black, sometimes broadly metallic green basally, the lateral margins usually brownish red and with pale yellowish pile. On the base and apex of the abdomen the pile is yellowish to white; on the disc shorter, appressed and rusty reddish to tawny; the fourth segment sometimes with black pile on almost the basal half except laterally. Venter brownish, with whitish pile. Genitalia reddish, with very short pale orange pile.

**FEMALE.**—Front with almost parallel sides on the upper two-thirds, slightly widening in front of the well-marked transverse depression which usually bears considerable yellow hair. Scutellum sometimes all metallic except for the lower border. Posterior tibiae sometimes with the broad apex and their tarsi brownish. Third abdominal segment with a very broad incomplete band of black hair at the base, the fourth black-haired with the sides and an interrupted apical band pale, the fifth with the base broadly black-haired except laterally. The pale pile is whitish to pale yellowish and longer than the appressed black pile. Sides of the abdomen yellowish beyond the second segment.

**TYPES.**—Holotype, male, and allotype, female, Nova Teutonia, Brazil, November 8, 1937 (Fritz Plaumann). Paratypes, four males and five females, Nova Teutonia, Brazil, February 12, 24, 26, November 2 and 8, 1937, and May 2, 5, 8, 1938 (Fritz Plaumann), received from Dr. C. L. Fluke.

#### ***Microdon shannoni*, new species**

Metallic green, brown, and black, the scutellum and legs wholly reddish; scutellar spines broadly separated. Length, 14 mm.

**FEMALE.**—Front above the weak depression with almost parallel sides, brownish red with brown stains near the ocelli, in front of the depression metallic dark green; pile black, narrowly yellow on the sides and broadly so just above the depression. Ocellar triangle broader than long, situated at the middle of the upper section of the front. Occiput with cinereous yellow pollen and yellow pile. Cheeks reddish behind, moderately narrow. Face metallic green, the orbits broadly yellow on the upper two-thirds, the yellow expanding above to reach the reddish ground surrounding the antennal base; pile rich brassy yellow. Face in profile gently convex above, strongly so below. Antennae reddish brown, the basal segment reddish except apically, almost as long as the second and third segments combined; third segment widest near the middle, tapering to a blunt apex; second segment not quite one-third as long as the third.

Thorax brownish red, the pectus and the mesonotum behind the suture brownish; pile golden, paler on the scutellum. Scutellum pale reddish, the spines strong, separated by about one-third the scutellar width.

Legs wholly reddish; femora with short appressed black pile, the middle and posterior pair with yellowish pile posteriorly and ventrally; anterior four tibiae with black hair anteriorly and dorsally and yellowish hair on the other surfaces; posterior tibiae with whitish hair; tarsi with black hair above.

Wings with luteous tinge, more grayish apically; apical crossvein sinuous, carried strongly outward in front of the middle, then strongly toward the base to join the third vein. Squamae reddish yellow. Halteres pale yellow.

Abdomen dull violet black and metallic green; the color black beneath the black pile and green beneath the pale. Abdomen widest at the apex of the second segment. First segment brownish black, the second metallic green with the base broadly black, the pile wholly pale but not abundant on the blackish areas. Third segment with the pile mostly pale brassy yellow and quite dense, leaving the black in the form of a tapering median vitta and a broad band on each side extending from the posterior angles to join the base of the median vitta. Fourth segment with similar markings, but in addition the apex of the segment is broadly black except on a very broad median area. On the fifth segment the pale pile is in the form of a very broad basal band on each side and a pair of broad, broadly separated median vittae extending from the base to the apical third, the pale vittae diverging posteriorly. Venter dark brown, somewhat metallic bluish basally.

**HOLOTYPE.**—Female, Maracaju, Matto Grosso, Brazil, August, 1937 (R. C. Shannon).

The wing venation places this species in the *fulgens* group, the apically angulate apical cell being typical. The scutellar spines are not, however, nearly as widely separated as in typical species of the group. It is a very beautiful insect and it gives me great pleasure to name it in honor of its collector.

#### ***Microdon hermetoides*, new species**

Blackish, the abdomen constricted basally, and with yellow band; wings dark brown in front. Length, about 15 mm.

**MALE.**—Head blackish, the face reddish brown with a very broad yellow stripe on each side of the lower two-thirds, the pale stripes converging below and reaching the anterior oral margin. Front narrowest at the anterior third, the depression well marked and arching forward. Ocelli situated in the middle of the upper section of the front; pile dull golden yellow, that on the anterior part of the upper section directed backward, the rest inclined forward; a broad band of black pile across the ocelli. Occipital pile dull golden yellow above, becoming whitish below. Cheeks wide, with sparse, whitish pile.



Face with short, sparse, appressed yellowish hair, just above the oral margin with dense, longer hair extending downward; in profile almost perpendicular, gently concave in the middle, only slightly receding above the oral margin. Antennae long and porrect, the third segment slightly longer than the first, with almost parallel sides on the basal five-sixths, thence gently narrowing to the obliquely truncate apex; arista not extending to the apex of the antenna.

Thorax blackish brown. Pleura with thin whitish pollen and whitish hair. Mesonotum with short, mostly black hair; on the anterior and posterior borders with broad band of dull golden-yellow pile, the suture with a narrow, interrupted band of similar pile. Scutellum blackish with the free border broadly luteous, about five times as broad as long and with a pair of stout broadly separated spines, the pile golden yellowish, very short and appressed.

Legs brown, with short appressed whitish pile.

Wings dark brown on the anterior third and with a very broad brown stripe bordering the fifth vein to beyond the crossvein, the paler areas cinereous hyaline.

Abdomen dull blackish, the second segment with a yellow fascia on the basal fourth in the middle, the band broadening to almost half the length of the segment laterally but not clearly reaching the lateral margins. Pile very short, appressed, white, black on the black part of the second segment except on the sides, and on the broad base of the third except laterally. The second segment is narrowest in the middle and gently widens to the base and apex, the third is moderately widened from base to apex, the abdomen widest at the basal sixth of the fourth segment. Second segment somewhat longer than wide, third twice as wide as long and one-fourth shorter than the second, fourth almost as long as the three basal segments. Venter with pale pile, the second sternite yellow in ground color. Genitalia of medium size, its appendage reddish.

**HOLOTYPE.**—Male, Moraballi Creek, Essequibo River, British Guiana, September 21, 1929 (Oxford University Expedition), in British Museum.

### *Microdon corona*, new species

Elongate, the second abdominal segment with a pair of yellow spots; scutellar spines approximate. Length, 15 mm.

**MALE.**—Head black, the occiput with brownish-yellow pollen, the sides of the face broadly yellow in ground color. Front shining black, the pile golden yellow; upper section of the front swollen and convex, the ocelli situated far forward in a large transverse triangle; front rather narrow, gently widening above and below the transverse depression. Occiput with black hair on the upper orbits, the pile golden above, becoming pale yellow below. Cheeks narrow, the face only slightly produced down-

ward. Face perpendicular, gently convex below, the lateral third yellowish; pile pale yellow. Antennae brown; first segment almost as long as the second and third combined, the third more than three times as long as the second, tapering on the apical half to the obtusely rounded apex; arista thickened almost to the apex.

Thorax black, the pleura with some obscure brownish-red areas, particularly on the posterior half. Pile appressed, short, golden, black on the disc of the mesonotum, pale yellow on the sternopleura. Scutellum small, convex apically, with a pair of almost contiguous spines.

Legs reddish, the posterior coxae mostly black; anterior four femora broadly brownish basally.

Wings cinereous hyaline, broadly yellowish brown in front on the basal four-fifths; bend of fourth vein broadly rounded, with a small appendage well forward, the apical crossvein strongly recurrent. Squamae whitish, with brown border and short brown fringe.

Abdomen dull, brownish, becoming black apically, with appressed brown pile, the two basal segments with yellowish pile; second segment with a pair of large triangular yellow spots extending from the base to the apical third. Abdomen long, gently clavate, the second segment narrower than the first or third, with almost parallel sides, the third segment gently widening from the base to apex. Second segment conspicuously longer than wide and one-fifth longer than the third, which is wider than long, the fourth elongate. Genitalia moderately large, with thin cinereous pollen and short whitish pile; the sides of the fourth segment with pale pile laterally. Venter black, the second sternite reddish yellow.

**HOLOTYPE.**—Male, Nova Teutonia, Brazil, August 17, 1936 (Fritz Plaumann), received from Dr. C. L. Fluke.

### *Microdon granulata*, new species

Metallic green, with large punctures; apical tarsal segment reddish; wings cinereous hyaline; scutellum spined, transverse apically. Length, 9.5 to 10 mm.

**FEMALE.**—Head with coarse, abundant punctures and very short whitish pile, the front with black pile on the upper half and vertex. Front about two-fifths as wide as one eye, widening on the anterior half; frontal depression weak, arched, adjoining the slightly convex, transversely rugose supra-antennal swelling; usual lateral depressions swollen, gently convex, leaving a median depression extending from the transverse depression to the ocelli; ocellar triangle longer than wide, the swelling prominent, situated well in front of the posterior angle of the eyes; occiput prominent on the upper half, below with white pile and pale pollen. Cheeks narrow, pale pollinose. Face moderately convex, with a linear median depression; the lateral pollinose stripes narrow. Antennae brown, the

first segment reddish on the basal half; third segment long, subcylindrical, somewhat enlarged on the apical half, the apex obtusely rounded. Eyes very short pilose.

Thorax with rather sparse short whitish pile, the mesonotum with short black pile except on the borders. Scutellum less than half as long as wide, transverse apically, with strong spines situated well inside the sharply rounded posterior corners, the spines with reddish apices.

Legs metallic green, the tarsi black, reddish apically; pile very short, yellowish, white on the tibiae and coxae.

Wings cinereous hyaline; apical crossvein slightly recurrent or almost transverse, sharply rounded behind but without distinct appendage. Lower lobe of squamae grayish white, with pale fringe.

Abdomen half longer than wide, tapering from the base of the second segment to the obtuse apex; the coarse punctures forming irregular, transverse ridges, the hair short, obscure yellowish. The first segment is widest basally, twice as long laterally as in the middle. Third segment about five times as wide as long, slightly lengthening laterally, fourth segment longer than the second in the middle, twice as long at the sides not clearly separated from the fourth; incisure between the second and third segments obsolete medianly, these segments with a shallow median longitudinal depression, the fifth with a large depression on each side. Venter with longer, pale pile.

**TYPES.**—Holotype, female, Mazaruni, clearing, British Guiana, August 27, 1937 (Richards and Smart), in British Museum of Natural History. Paratype, female, Amatuk, British Guiana, September 12, 1937 (Richards and Smart), and one female, same locality as holotype, September 17, 1937.

#### *Microdon caesar*, new species

Metallic green; apical crossvein recurrent; scutellum transverse apically. Length, 10 mm.

**MALE.**—Front narrow at the lower third, strongly widening above and below; the upper section striate, the ocelli situated at the middle; pile black, yellow along the lower orbits and on the vertex. Occiput whitish pollinose, the orbits broadly shining on the upper half; pile yellow above, becoming white below. Cheeks rather narrow. Face gently convex, more strongly so below, the middle transversely wrinkled on the upper half, the sides without conspicuous punctures, the orbits narrowly grayish pollinose. Pile whitish. Antennae black, the third segment brown, distinctly shorter than the first, widest near the apical fourth, thence strongly tapering to the obtuse apex; second segment almost one-third as long as the first; arista much shorter than the third segment. Eyes with some scattered microscopic hairs.

Thorax with golden-yellow, subappressed pile above, the pleura pale-yellowish pilose, the mesonotum with a few isolated black hairs on the posterior half. Scutellum transverse apically, about twice as wide as long, with a strong spine on each apical corner.

Legs metallic, the tarsi black and black pilose, the basal segment of the hind tarsi violaceous; femora yellow pilose, the apex of the posterior pair black-haired above; tibiae with whitish pile.

Wings cinereous hyaline, bend of fourth vein broadly rounded, the apical crossvein slightly recurrent. Squamae white. Halteres yellow.

Abdomen with appressed yellowish pile basally, laterally and apically; third segment black-haired on the disc except for a broad posterior band of deep yellowish pile that is broadly interrupted in the middle and broadens inwardly, its outer end uniting with a large triangle of similarly colored pile on the sides of the fourth segment; fourth segment with a very broad arch of black hair resting on the base, this arch emitting a median triangle that extends narrowly to the apex of the segment. Venter yellowish pilose. Genitalia partly reddish. Second segment widest, not half as long as the third, the fourth more than twice as long as the third.

**HOLOTYPE.**—Male, Nova Teutonia, Brazil, November 10, 1937 (Fritz Plaumann), received from Dr. C. L. Fluke.

#### *Microdon bassleri*, new species

Metallic green, the apical cell without angulate apex; scutellum pale pilose. Length, 14 mm.

**FEMALE.**—Front rather wide, with almost parallel sides above, the surface mostly striated, the transverse depression gently arched; ocellar triangle situated at the middle of the upper section; pile black, yellow along the lower orbits and across the depression. Occiput cinereous pollinose except on the broad orbits of the upper half, yellow pilose above, white pilose below. Cheeks rather narrow. Face gently convex, more strongly convex below; sides above conspicuously punctured; pile pale yellowish. Antennae black; third segment brown, about as long as the first, with parallel sides on the basal three-fourths, thence gently tapering to the obtuse apex; second segment one-fourth as long as the first; arista shorter than the third segment. Eyes bare.

Thorax with brassy yellow pile, the disc of the mesonotum extending to the posterior border, with appressed black pile except for some pale hairs along the sutures. Scutellum transverse, almost rectangular with strong spine at each apical corner.

Legs metallic green, the tarsi black with violaceous reflections; pile yellow, almost white on the tibiae, black on the tarsi and on the upper surface of the posterior four femora.

Wings pale brown, hyaline on the posterior

half; apical crossvein recurrent, the bend of the fourth vein rounded. Squamae white, the upper lobe with black fringe. Halteres reddish yellow.

Abdomen with moderately coarse punctures; pile yellowish on the base, sides and apex, appressed; third segment with black hair, the fourth with black hair but with a broad, broadly interrupted, posterior band of pale hair that expands inwardly, the fifth with a small triangle of black hair in the middle basally; venter wholly yellowish pilose. Second segment widest, half as long as the middle of the third; fourth segment a little more than twice as long as the third, the fifth in the middle about two-thirds as long as the fourth.

HOLOTYPE.—Female, Rio Ucayali, Peru, November 28, 1923 (H. Bassler).

### *Microdon tigrina*, new species

Metallic violaceous and greenish, the thorax of the female blackish; apical cell produced outwardly; robust species. Length, 13 to 15 mm.

MALE.—Front bronzed, narrowest at the anterior third, the depression deep; pile golden, mixed with black in front of the depression; ocellar triangle slightly wider than long, situated at the middle of the upper section of the front. Occiput metallic green, ashy pollinose, the pile pale yellowish, black behind the upper orbits and tawny on the orbits near the vertex; scattered black hairs extend across the vertex to unite the black pile on each side. Cheeks narrow, violaceous. Face bluish green, the orbits broadly yellow on each side, the pile brassy yellow; in profile almost perpendicular, with a weak swelling above and moderately convex below. Antennae blackish, the third segment brown; first segment almost as long as the second and third combined, the second one-fourth as long as the first; third segment tapering from the middle to the obtuse apex.

Thorax black, the mesonotum rather coppery red, with a very broad, more or less divided median vitta and narrow, incomplete lateral vittae; pleura green and bronzed in front on the upper half. Pile golden, moderately long. Scutellum coppery red with poorly defined green areas laterally and between the broadly separated, large spines.

Legs black, black pilose; anterior and middle femora with reddish yellow hair behind, the posterior pair pale yellow-haired beneath; anterior four tibiae with yellowish hair behind, the posterior pair with some yellow hair above and on the basal part of the anterior surface. Anterior four tarsi and the apical segment of the hind pair reddish. The pale pile is mostly mixed with black and is only evident from certain angles.

Wings with yellowish-brown tinge, more hyaline posteriorly; apical crossvein produced angularly outwardly and with a short appendage on the anterior fourth. Squamae brown and with brownish-red fringe.

Abdomen rather dull violaceous and metallic green. First and second segments brassy yellow pilose, the second with a large triangle of short black pile laterally. Third segment black haired with a median vitta, an oblique stripe toward either side posteriorly, and large basal triangles at the sides pale golden pollinose. Fourth segment with median vitta, more elongate lateral triangles and broader intervening stripe pale golden, the apex of the segment with some long yellow hairs. Genitalia black, with short brown pile above and obscure yellowish pile below. Venter black, with pale-yellowish pile, the apices of the segments reddish. The metallic green color lies beneath the pale pile on the third and fourth segments.

FEMALE.—Front moderately wide, with almost parallel sides above the low depression; pile black, yellow along the orbits anteriorly, across the depression and on the ocellar triangle. Pleura more or less violaceous and greenish and with mostly dull golden pile. Mesonotum black, with mostly black pile but with rather tawny pile prevailing on the broad sides behind the suture as well as forming a broadly interrupted band on the suture. Scutellum slightly darker than in the male and with considerable black pile on the disc. Basal four abdominal segments very similar in pattern to the male; fifth segment without the median vitta, the sublateral stripes narrow and almost parallel, the basal oblique triangles strong.

TYPES.—Holotype, male, allotype, female, and paratype, female, Rio de Janeiro, Brazil, January, May, and December, 1938 (R. C. Shannon).

This species is rather similar in markings to *shannoni* but is readily distinguished by the color of the legs and darker general coloration.

### *Microdon nestor*, new species

Metallic green, blue and violaceous; apical cell produced apically; legs black. Length, 9 to 11 mm.

MALE.—Head violaceous, the front partly green, strongly widening above and below the deep transverse groove, the pile black; ocellar triangle with the sides equal, situated at the middle of the upper section of the front. Vertex and occiput yellow pilose, the occiput green, whitish pilose. Cheeks narrow, blue-green in front. Face gently convex, strongly convex below, with pale-golden pile, the orbits narrowly ashy pollinose. Antennae elongate, black, the first and third segments of almost equal length, the second about one-third as long; third segment with the sides subparallel, narrowing on the apical fourth or less.

Thorax bluish or greenish and strongly violaceous, the scutellum green. Pile pale golden, black on the disc of the mesonotum and on the pleura. Scutellum transverse, the spines widely separated.



Legs black, the femora more or less metallic, the pile black.

Wings brownish, paler posteriorly and basally; apical crossvein angularly produced outward in front of the middle. Squamae white, with yellow border and fringe. Knob of halteres yellow.

Abdomen metallic green, strongly brassy or bronzed, the pile brassy or golden yellow; second segment widest at the apex, the third with parallel sides, the fourth narrowing apically. Third segment with an incomplete band of black pile on the basal half or more which expands in the middle to reach the apex of the segment; fourth segment with the black pile more broadly separated from the lateral margins, occupying the basal half and produced backward toward the sides and in the middle but not nearly reaching the posterior margin. Genitalia reddish yellow and yellow pilose. Venter violaceous, with black pile.

**FEMALE.**—Front wide, the depression moderately deep; lower orbits and depression with yellowish pile or at least with some yellowish hairs. Fifth abdominal segment not strongly separated from the fourth, golden pilose with a short median stripe of black pile basally, the ovipositor black.

**TYPES.**—Two males and three females, Nova Teutonia, Brazil. Holotype, male, December 1, 1937; allotype, female, November 27, 1937; paratypes, December 4 and 7, 1937, and January 25, 1938. The specimens were collected by Fritz Plau-mann and received from Dr. C. L. Fluke.

#### MALLOTA MEIGEN

The following key will separate the American species definitely known to belong to this genus. *M. championi* Williston belongs to *Quichuana* Knab.

#### TABLE OF SPECIES

- 1.—Thorax (except a few hairs in front and the margins of the scutellum) wholly black pilose above.....2.  
Thorax mostly or wholly red or yellowish pilose.....4.
- 2.—Third abdominal segment black pilose on at least the basal half.....3.  
Third segment yellow pilose to the base except in the middle; scutellum with yellow pile on lower half of its free border.....*mystacia* Fluke.
- 3.—Scutellum wholly black pilose.....  
.....*margarita* Williston.  
Scutellum broadly yellow pilose on its free border.....*nigra* Shannon.

- 4.—Thorax clothed with abundant bright reddish pile.....5.  
Thorax clothed with reddish-yellow to pale-yellow pile.....7.
- 5.—All the abdominal segments with bright reddish pile; second segment with interrupted reddish fascia.....*rubicunda*, n. sp.  
Second and third segments black pilose, the first segment sometimes with a little reddish pile laterally.....6.
- 6.—Face with pale-yellow pile laterally, first abdominal segment without reddish pile laterally.....  
.....*colombii* Macquart.  
Face with red pile; first abdominal segment with some red pile laterally.....*analisis* Macquart.
- 7.—Eyes with distinct pile.....8.  
Eyes bare.....10.
- 8.—Mesonotum with a broad band of black pile before the scutellum which may be partly interrupted in the middle by yellow hairs.....9.  
Mesonotum with some black pile on the disc of the posterior half, the sides always broadly yellow pilose.....  
.....*posticata* Fabricius.
- 9.—Scutellum yellow pilose.....*salti* Curran.  
Scutellum black pilose.....  
.....*inversa* Shannon.
- 10.—Abdomen shining rusty reddish; front black pilose.....*smithii* Williston.  
Abdomen usually black, if somewhat reddish the front yellow pilose.....11.
- 11.—Nearctic species.....12.  
Neotropical species (Peru).....  
.....*aberrans* Shannon.
- 12.—Abdomen entirely black pilose except a few hairs on anterior angles of the second segment.....13.  
Abdomen more or less yellow pilose beyond the second segment.....14.
- 13.—Wings with a conspicuous brown spot at the middle in front; squamae brownish (*columbiae* Curran, not *colombii* Macquart).....  
.....*sackeni* Williston.  
Wings with a small linear, irregular brown spot; squamae white.....  
.....*cimbiciformis* Fallen.
- 14.—Last segment in male, last two in

female, chiefly or all (rarely less than half the hairs) yellow to orange pilose (*flavoterminata* Jones).

..... *facialis* Hunter.

- 15.—Abdomen brownish, second to fifth segments each with a pair of lighter brown spots (Colorado)....

..... *palmerae* Jones.

Abdomen black, not with brown spots.....16.

- 16.—Posterior femora all black except just the apex; thoracic pile pale yellow (*palmerae* Jones?). *albipilis* Snow.

Posterior femora with the broad apex (at least) reddish.....17.

- 17.—Mesonotum chiefly orange pilose....

..... *illinoisensis* Robertson.

Mesonotum with pale yellow pile....

..... *diversipennis* Curran.

### ***Mallota rubicunda*, new species**

Thorax, and base and apex of the abdomen with thick orange-red pile, the second abdominal segment with lunulate reddish markings; scutellum yellow. Length, 15 to 16 mm.

MALE.—Eyes narrowly separated. Head black, the frontal triangle with brownish pollen on the upper two-thirds, the sides with more grayish pollen; vertical triangle thinly grayish-yellow pollinose; pile black, the frontal triangle sometimes with tawny hair laterally and above. Pile of the occiput chiefly tawny but there are black hairs intermixed and the pile becomes more yellowish below and on the cheeks. Face more or less reddish above and toward the sides, with reddish-brown pollen which becomes cinereous laterally, and yellow pile. The anterior half of the cheeks and the broad middle of the face on the lower three-fourths are shining black. Antennae brown or black, the arista reddish. Eyes with yellow pile.

Thorax black, the humeri and notopleura reddish, the scutellum yellow; thickly tawny pilose, the pile becoming yellow on the lower part of the pleura; mesonotum with cinereous pollen that leaves a pair of narrowly separated dull blackish vittae and wider, abbreviated and interrupted sublateral vittae.

Legs black, the anterior femora, and sometimes the middle ones, reddish, but they may be reddish only posteriorly on the basal half or more; posterior femora arcuate, reddish on the basal fifth or less, the posterior tarsi brownish or brownish red. Legs black pilose, the anterior four femora yellow pilose posteriorly on the basal three-fourths and with tawny pile on the lower half of the posterior surface; posterior tibia arcuate, with moderately long pile above and below.

Wings brownish on the basal three-fourths,

paler on the basal half, the apex and broad posterior border brownish gray. Squamae brownish red, the lower lobe with tawny fringe, the upper brownish and with black fringe. Halteres brown.

Abdomen black, the second segment with a broadly interrupted dull reddish-yellow fascia lying mostly before the middle and expanding laterally to occupy the broad sides of the segment except posteriorly. Pile tawny and black; tawny on the first segment, basal half of the second and sometimes on the middle of the second, on the middle and posterior border of the third, except laterally, and on the fourth segment except for some black hair on the sides; subappressed, appressed on the fourth segment. Venter with thin cinereous pollen and long, sparse yellow hair on all but the fifth sternite. Genitalia black, with a few long black hairs.

TYPES.—Holotype, male, and paratype, male, Mt. Tungurahua, Ecuador, August 20, 1937, 2600 m. (W. Clark McIntyre).

The two specimens are colored very much like *Bombus rubicundus* Smith and were taken on the same plant in company with this bee.

### ***Mallota facialis* Hunter**

HUNTER, 1895, Can. Ent., XXVII, p. 100.

*Mallota flavoterminata* JONES, 1917, Ann. Ent. Soc. Amer., X, p. 228.

I have collected this form in Kansas, where it is rather common, but am not certain of its exact status. In typical specimens the apical abdominal segment in the male and the two apical segments in the female are pale-orange to yellow pilose and the form is very distinct from *cimbiciformis* Fallen. However, in the large series taken at Lawrence, Kansas, the amount of yellow pile on the apical abdominal segments varies to such an extent that it seems likely that *facialis* can be considered no more than a color variety of *cimbiciformis*. Some of the specimens have only scattered yellow hairs and the series shows an increase in these until the black hair has been entirely replaced. An examination of the male genitalia shows no differences worthy of note. Study of a still larger series may result in the discovery of distinctive characters, so the name may be retained for the present.

### ***Mallota albipilis* Snow**

SNOW, 1895, Kans. Univ. Quart., III, p. 244.

*Mallota palmerae* JONES, 1917, Ann. Ent. Soc. Amer., X, p. 229.

*Mallota albipilis* was described from a single female from New Mexico, *palmerae* from two males from Colorado. I have taken the species in Kansas but do not have the specimens before me now. There is one male in the Museum collection from New Mexico that agrees with the description of *palmerae* in almost all details so it is reasonably certain that the two names apply to the same species.

*M. albipilis* belongs to the group of species in which the eyes of the males are well separated.

### *Mallota illinoisensis* Robertson

ROBERTSON, 1901, Can. Ent., XXXIII, p. 284.

Very similar in structure to *albipilis* Snow but the pile of the thorax is tawny and the legs are sometimes mostly reddish, rarely almost all black. The pile on the ventral surface of the posterior tibiae is all short and subappressed. The eyes of the male are well separated. The collection contains specimens from Kansas and Oklahoma.

### *Eristalis obligus*, new species

Black, the mesonotum with cinereous fascia in front of the suture, wings strongly tinged with brown; posterior tibiae distinctly produced apically. Length, 10 to 12 mm.

MALE.—Head black, cinereous white pollinose, the lunula rusty reddish. Frontal triangle moderately large, with a large, low tubercle anteriorly, brownish pollinose in the middle; pile black, yellowish below. Vertical triangle small, black, cinereous in front of the ocelli, the pile black. Occiput with black pile on the upper third, white below. Face with a broad shining black vitta on the lower three-fourths, white pilose but toward the middle the pile has a yellow sheen; in profile slightly receding, the tubercle moderately large. Antennae brown, the base of the third segment more or less reddish.

Dorsum of thorax opaque black with a rather narrow cinereous fascia just in front of the suture, the pleura grayish pollinose except on the anterior half of the pteropleura and the posterior border of the mesopleura. Pile black, yellowish on the pale-pollinose portions of the pleura and on the pale fascia, the sternopleura with some black hairs above. Scutellum dull yellow with the base narrowly black, the pile wholly black.

Legs black; pile black, the front and middle

femora with some pale pile on the basal half posteriorly, the posterior pair with pale pile on the basal half above and some long pale hairs on the basal half below; middle tibiae with pale pile in front and behind on basal half or more; posterior tibiae produced triangularly on the anteroventral angle.

Wings strongly tinged with brown, particularly on the apical half in front. Squamae brown with yellow fringe. Halteres pale yellow.

First abdominal segment dull black. Second segment opaque black with a pair of very large yellow spots that reach almost the length of the segment laterally, are convex inwardly, and separated from each other by almost their width. Third segment opaque black, with a broad, narrowly interrupted median shining fascia and with a large, subrectangular, yellowish spot on each side at the base, the spots very widely separated from each other. Fourth segment shining metallic black on the basal half except for a narrow, incomplete basal opaque black fascia that is expanded in the middle to unite with the opaque black posterior two-fifths; apices of third and fourth segments pale yellow. Genitalia shining black. Pile black, yellow on the sides of the second segment basally, on the yellow spots, on the sides of the fourth segment and on the genitalia. Venter yellow, the apical sternite black.

FEMALE.—Sides of front cinereous pollinose on almost the lower half, brown pollinose across the middle, the upper third dull brownish black, the anterior third shining except on the broad sides. Second abdominal segment opaque black with smaller metallic blackish spots in place of the yellow ones. Third segment with an opaque black basal fascia extending to the lateral fifth, the shining median fascia expanding to reach the base of the segment laterally. Fourth segment shining on basal half except for a median, opaque black triangle; fifth segment wholly shining black.

TYPES.—Holotype, male, Mazaruni, British Guiana, September 23, 1937 (Richards and Smart). Allotype, female, Middle Rio Maranon, Peru, November 8, 1925 (H. Bassler). Paratypes, three females, Rio Putamayo, Peru, and one female, Moraballi Creek, Essequibo River, British Guiana, September 9, 1929. The British Guiana specimens are in the British Museum of Natural History.

This species runs out with *erraticus* Curran, *conicus* Fabricius and *scutellaris* Fabricius, differing from all of these by the absence of a pale pollinose or shining prescutellar fascia.